

CARMALT (W. H.)

CASES OF INTEREST.

BY

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From the Proceedings of the Connecticut Medical Society, 1884.

HARTFORD, CONN.:

PRESS OF THE CASE, LOCKWOOD & BRAINARD COMPANY.

1884.



CASES OF INTEREST.

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CANCER OF TONGUE, OPERATION FOR REMOVAL, WITH PRELIMINARY
LIGATION OF BOTH LINGUAL ARTERIES AND TRACHEOTOMY; PATIENT
PRESENTED TO MEETING OF SOCIETY.

E. M., aged forty, truckman, was admitted to the New Haven Hospital on 13th of April, 1884, with the history that seven weeks previously he noticed his tongue swelling, and that it was coated with a thick, tenacious fur. The swelling became so great as to prevent his closing his teeth, but not his lips. He has been a persistent smoker of tobacco, and shortly before this he had bought some which was "very strong and smarted his tongue." The swelling had subsided somewhat, so that now he can, by an effort, close his teeth. It is still, however, about double the size of an ordinary tongue, though he volunteers the statement that it "always was big." He has been able to take only liquid food since it began to swell, and he says he has lost much flesh although he looks well nourished. His teeth are loaded with "tartar" and his breath is very offensive. His gums are much swollen with a distinct reddish-blue line along the teeth, and there is very considerable salivation, but he gives no history of mercurialization. His speech is almost unintelligible. The tongue is quite indurated, especially around its edges, and in one portion at about opposite the right canine and bicuspid teeth it is eroded, the base of the ulcer being granular. The surface is here a little below the level of the surrounding (swollen) part. The induration gradually lessens posteriorly, so that one-third at this part is of nearly normal consistence. A very careful examination detects no enlarged lymphatic glands about the angles of the jaw, nor in the floor of the mouth. He has had no pain in the tongue, only the inconvenience.

The patient was ordered a mouth-wash of chlorate of potassa, biborate of soda, alum, orris-root powder, and tincture myrrh, to be carefully washed out every hour. The "tartar" was thoroughly cleaned off from his teeth, and he was ordered liquid food in sufficient quantity. Under this treatment the swelling subsided considerably, the tongue became cleaner and the blue line disappeared from his gums. The induration about the tip and edges continued, indeed, with the subsidence of the

surrounding swelling it became more marked. On April 22d, and subsequently, patient complained of darting pains through the tongue, and on consultation it was decided to amputate it. Accordingly, on September 28th, the patient was anesthetized and assisted by Dr. T. H. Russell, I operated as follows: I first passed a large ligature through the tongue in order to keep it drawn forward, as from its large size it was liable, during the administration of the ether, to fall back and block up the entrance to the larynx. I then ligated both lingual arteries with catgut ligatures, washed out the wounds with a solution of corrosive sublimate, 1 to 1,000, and sewed it up with a continuous catgut suture. On the left side I divided the hypo-glossal nerve, having first ligated it by mistake for the artery. I may remark here that both these wounds united by first intention throughout their whole extent, the catgut sutures were absorbed, and I never gave them any other than the slightest dressings.

The tongue was then excised with curved scissors, and the floor of the mouth down to the mylo-hyoid muscles cleaned out. On the right side the tongue was divided at about on a line with the second molar tooth, but not quite so far back on the left, as the induration was not so marked on this side; the line of incision was, however, quite behind all perceptible induration on either side. The operation was almost bloodless, the ligation of the lingual arteries fully compensating for the tediousness of the preliminary operation, rendering the operating field nearly as clean as when operating on a limb with the use of Esmarch's elastic bandage.

I then proceeded to make a tracheotomy, and in doing this the only unpleasant incident of the series of three operations occurred. As I was cutting down upon the trachea I found the isthmus of the thyroid gland unusually broad, necessitating carrying the incision lower down than usual. Owing to the deeper situation of the trachea as it passes behind the sternum, a pillow was placed under his shoulders to make the neck more prominent, and the dissection was carried on deliberately. I did not feel in any hurry, as there was no tendency for the stump of the tongue to fall back, nor hemorrhage from the wound in the mouth into the larynx. I was, therefore, surprised to notice the respiration stop, and the face become rapidly cyanotic; at the same instant a gentleman having his finger on the radial artery exclaimed, "his pulse is fluttering," and I saw the pupils suddenly dilate widely. I looked about to find the cause, passed my finger down behind his tongue to press that forward, found everything clear; Dr. Russell began artificial respiration, but the air did not enter the chest, and I then noticed that the position of the head, falling back from the elevated shoulders, had practically closed the trachea "fore and aft." The pillow was removed, a couple of movements of artificial respiration repeated, when the color came back to

the face, all the untoward symptoms disappeared and the patient breathed again as usual. I mention this as an argument against Professor Rose's plan of operating on the parts about the mouth and nose by, as he calls it, "the hanging head." This consists in bringing the shoulders of the patient to the edge of the operating table and allowing the head to fall over backwards as far as it will, thus bringing the force of gravity to aid in preventing the blood from trickling into the trachea. It probably would be successful, but is liable to be accompanied by the accident mentioned. I think Dr. R. F. Wier of New York has called attention to this objection also.

The operation of tracheotomy was then finished, and a Dunham's tracheal tube inserted, as being less likely to irritate the posterior tracheal wall, a point of importance as the tube was to be kept in until granulations were formed on the cut surface of the tongue. The fauces were then plugged full with a large sponge and the nostrils with absorbent cotton; the wound in the mouth was dressed with iodoform dusted upon it and 50% iodoform gauze laid upon the surface. He breathed regularly and calmly through the tracheal tube, which was kept covered by a couple of folds of antiseptic gauze constantly moist with a 1% solution of carbolic acid. About four hours after the operation, during a paroxysm of coughing, the tracheal tube was forced out and as the Dunham's tube was found unreliable, not keeping in position well, it was changed, but all the tubes accessible were found unsatisfactory, as in all the ordinary lengths the tracheal end was lifted out during the effort of coughing, by the contractions of the sternal ends of the sterno-cleido-mastoid muscles upon which the flanges of the canula rested. After some difficulty one was reinserted, the patient in the interval breathing sometimes through the opening and sometimes through his mouth, the sponge being removed for the purpose, but the surface of the wound kept covered as described. This accident occurred several times during the night and the next day until a longer tube was procured, after which there was no trouble from this source.

The patient was ordered to be nourished by enemata of 2 oz. of beef extract every four hours, and 8 oz. of milk by the mouth through a stomach tube every four hours alternately, so that he received nourishment every two hours. The temperature of room was ordered to be kept at about 80° F. and impregnated with steam. The mouth was constantly plugged; the tracheal tube removed and cleansed and the mouth washed out every hour. The directions were in the main followed out; difficulties in their administration were met promptly and intelligently by Drs. Loomis and Bogert of the house staff, and the nurses of the Connecticut Training School were unremitting in their attention to the patient and faithful in obeying instructions. I ascribe a large part of the success of this part of the case to the excellent assistance I received.

On May 1st the plugging from the fauces was left out as it was excessively disagreeable and by the motions of his stump of a tongue and pharynx, kept working free. The nostrils were still plugged, however, and he was compelled by the nurses to keep his mouth shut, thus breathing as before through the tube; the wounded surface was dressed as before. The secretion from the trachea which was coughed up through the tracheal tube, was to-day noticed to be purulent and more profuse, but not excessively so. He has slept well every night since the operation and has taken sufficient food by rectum and mouth together. On May 2d, patient objected so strongly to the stomach tube that he was allowed, after carefully washing out his mouth, to drink, which he did readily enough by filling his mouth full and throwing his head far back. The surface of the wound in the mouth showing a disposition to form an abundance of healthy granulations, and no feter being present, the tracheal canula was removed the next day; but this wound gaped, and the whole surface was covered with a pyogenic membrane. It was washed out with a solution of potassium permanganate and covered with several layers of antiseptic gauze, the latter afterwards changed to a sponge frequently moistened with a similar solution.

On May 16th, patient's temperature rose to 101.4° and for the next week oscillated between 98° in the mornings and 102° or thereabouts in the evenings. There were coarse mucous râles over the upper and middle portions of the left lung, and some dullness at the apex. He was fed on as nourishing a liquid diet as possible, consisting mainly of raw or soft boiled eggs well beaten up, beef extract, milk ad libitum, custards, etc. And he is ordered 2 oz. of cod liver oil daily.

There was nothing worthy of note after this in the cicatrization of the tongue and mouth, and as you now see, it is fully accomplished just one month since the operation. The tracheal wound however has not closed and shows but little disposition to do so. The cut extremity of one of the divided tracheal rings appears necrotic at the bottom of the wound. There is considerable purulent secretion coughed up through the orifice which is kept covered with a large wad of borated cotton, enveloping all the anterior portion of the neck, extending down upon the chest, all firmly wrapped with a roller bandage of corrosive sublimate gauze. He does not emaciate perceptibly, but neither does he apparently gain. His temperature continues to rise to about 101° every evening, sometimes higher; less frequently, lower.

There is not time now, without trespassing on the privileges of others, to give at any considerable length, the reasons for adopting the method of operating described, so much more complicated and tedious than those formerly practiced. The plan is developed from our knowledge of the causes of death following the operation, being (aside from recurrences which are not considered here) almost exclusively septic in their

character, and consists, in short, in the adoption of measures that, so far as the locality will allow, are either directly antiseptic in their action, or guard against septic materials entering the organization. For a more complete discussion of the subject I must refer the members to Mr. Barker's very admirable article,* where the reasons are given at length, with the statistics.

For an operation of this comparatively slight magnitude, not involving any directly vital organ, the mortality has always been recognized as very large. Prior to 1876 it was, according to Mr. Barker's statements, derived from Billroth's Clinic at Vienna, from Kocher's of Bern, and the statistics of University College Hospital, where he and Mr. Christopher Heath have operated, about 40 per cent. of the cases operated upon, while since that time it would seem that it has been reduced, in the same services, to something like 10 or 12 per cent.

The results of autopsies show the principal causes of death to be septic infection of the lungs in one form or another. That decomposition is going on rapidly in the mouth after this operation, would not be doubted by any one who has approached a case before the more thorough modern antiseptic forms of treatment came into vogue, and to those who have not had this opportunity, I beg to recall to their memories the more familiar but infinitely less severe cases of compound fractures of the lower jaw. We are all of us familiar with the intolerable stench in these cases. How much worse, therefore, an amputation of the tongue must be can readily be imagined. That such a quantity of septic material lying constantly in the mouth (for the most careful nursing can only swab it out, comparatively to the inspirations, very infrequently), the exhalations therefrom drawn into the lungs from 20 to 30 times a minute should be a source of great danger to the lungs, need, in the light of our present knowledge of infectious conditions, only be mentioned to be appreciated.

Three fairly distinct forms of pulmonary diseases are found at post mortem examinations, viz.: most infrequently, typical pyæmic abscesses, these truly pyæmic cases, always run a long course, and are associated with purulent deposits elsewhere; more often than these are a number of cases, following more directly purulent infiltration of the neck, with gravitating abscesses into the mediastinæ, penetrating into the pleuræ and lungs, this form is, of course, more rapidly fatal than the former, but neither is it so rapid nor so frequent as the more direct septic infection of the pulmonary tissue from the fœtid products of decomposition in the mouth. These are either drawn into the lungs with every inspiration or they trickle down into the larynx and trachea, owing to the inability of the patient so to manage his mutilated stump of a tongue as to prevent it.

* Holmes' System of Surgery, 2d English Edition, Vol. II, p. 553, *et seq.*

The descriptions given by the various authors of the conditions of the lungs after death show the septic origin. They speak of lungs permeated with decomposing, purulent nodules; the bronchiæ filled with fœtid, purulent fluid; gangrene of lung; acute broncho-pneumonia; areas of gangrenous inflammation, all pointing to a direct infection from the putrid contents of the mouth.

The value of the method of operating described by Mr. Barker, which I endeavored to follow, therefore consists in securing for the respired air, so far as possible, freedom from septic influences. By the ligation of the lingual arteries, besides the advantages already described of having a clean operating field, there is much less bloody exudation from the cut surfaces *after* the operation; by the tracheotomy the respired air is drawn from an uninfected locality; by the plugging of the fauces and nostrils the accidental entrance of air loaded with decomposing materials is, in a great measure if not entirely, prevented, and finally the wound in the mouth can be kept constantly dressed with antiseptic remedies. I can but regard the lung complication in this case as being due, rather to the tracheal fistula than to irritation from septic infection by way of the mouth, and the tracheal fistula to have been caused by the accidents from the too short tracheal canulæ.

A CASE OF UNSUCCESSFUL WIRING OF THE PATELLA FOR UNUNITED FRACTURE.

W. H. H., aged 38, was admitted a second time to the hospital, September 29, 1883, having been treated there eighteen months before for a transverse fracture of the right patella, and discharged with a ligamentous union of about $2\frac{1}{2}$ inches, wearing a posterior stiff leather splint which he has continued to wear since. One week before admission, in sliding off from a hay mow, the heel of the boot of his right foot caught on the edge of a barrel, bending the knee violently and rupturing the ligamentous union. On admission, the fragments were separated about $5\frac{1}{2}$ inches, and there was considerable swelling and pain in and about the joint. The leg was placed at rest and lotions and fomentations applied to reduce the inflammation.

On October 20th, the leg was put up on a long inclined plane reaching from the buttocks to below the foot, with a foot-piece, and elevated about 25° . Adhesive plaster covering a large part of the quadriceps extensor muscle down to the patella was applied, and a roller bandage over this again. To the adhesive plaster elastic tubing was fastened, and this attached to the foot-piece, keeping up a uniform extension. The lower fragment was simply fixed. In the course of five weeks the distance between the fragments was reduced to about $1\frac{1}{2}$ inches, but the ligamentous union was so very slight that if the extension was taken off it seemed to yield to the contractions of the quadriceps, and the move-

ments between the fragments was quite free. Impressed by the then recent address by Sir Joseph Lister, on the "Treatment of Fracture of the Patella," delivered at the Medical Society of London, and published in the *Lancet* of November 3, 1883, in which he reported seven successful cases of wiring the fragments together under antiseptic precautions, I determined to attempt the same operation, following as nearly as possible in his steps as there given. Accordingly on November 28th, the patient being anæsthetized, and using the carbolic spray as well as all other antiseptic precautions, an incision about five inches in length was made directly over the patella in the long axis of the limb down to the fragments. A thin ligamentous band united the latter; this was removed and the joint thus exposed. The opposing surfaces of the patella were scraped clean of all fibrous material so that when they should be brought together osseous tissue should be in contact. The drainage was then provided for as Lister advised, by carrying a pair of closed dressing forceps through the joint in the intercondyloid space, pushing them through the synovial membrane and capsule downwards to emerge into the popliteal space quite external to the artery. As the forceps presented underneath the skin, this was incised and the forceps then pushed through the opening. The rubber drainage tube was then grasped by the forceps, and as they were withdrawn through the joint the tube was drawn into it; when fairly within the joint the hold was released, the tube remaining in place.

The fragments were then drilled so as to bring the holes on the fractured surface exactly opposite to each other on the median line, and each about a line from the lower surface. Then introducing the pure silver wire, which was about $\frac{1}{12}$ of an inch in diameter,* the attempt was made to draw the fragments together, but no direct force that could be exerted was sufficient to approximate them more than $\frac{1}{2}$ of an inch, and then on twisting the ends of the wires together, and thus getting greater force, the wire began to cut through the bone of the upper fragment. I then divided the tendon of the quadriceps muscle subcutaneously, but it still required all the force that could be exerted upon the fragment, using both the wire already introduced and Fergusson's lion-jawed forceps to get traction, before the fragments could be brought to within $\frac{3}{8}$ of an inch of one another. In using this force the wire fractured the upper fragment longitudinally separating a small fragment from the inner side; another wire was then introduced through the larger piece, and the two pieces united by a fine silver wire; as there was little lateral force this did not require to be very strong. The wound was then closed, and dressed with a full Lister's dressing. The operation lasted $1\frac{1}{2}$ hours.

* Mr. Lister advised 1-10 in diameter, but I found 1-12 even quite unwieldily.

On recovery from the ether the patient was in great pain and although $\frac{1}{4}$ gr. of morphine was given every two hours, he rested but little during the night. November 29th, T. 100.6, P. 92, R. 30, the dressings being soiled by oozings from the wound were changed under the spray. The pain continued without any cessation until December 4th; during this time the temperature ranged between 101.6 and 97.6; on that day the pain suddenly remitted, and as the bandage was slightly stained it was again changed under the spray; it was found that the wire had drawn through the upper fragment and the separation was as wide as before the operation. The discharge on the dressing was very slight, all from the wound over the patella, none from the drainage tube. After this the pain was never very severe, easily controlled by moderate doses of morphine. The dressings were removed and re-applied twice during the succeeding ten days, at the second dressing the wound was found open and filled with granulations. On the 15th, 17 days after the operation, I removed the wires, and the drainage tube. After this there was no especial change until December 30th, when he had a chill followed by T. 102.5. On the next day, the leg was again dressed, and an abscess, the size of a walnut, was found just underneath the skin, to the inside of the patella, not communicating with the joint. This was evacuated, washed out thoroughly with 5 % solution of carbolic acid, and it immediately closed; there was then nothing but the external wound to dress, so the Lister's bandage was removed and bismuth applied. On March 10th, this was omitted and the wound strapped. On May 13th, a silicate of soda splint reinforced with paste-board at the sides was applied, and on drying, the patient was allowed to walk. This he did and still does without much difficulty, but the movements of the joint are very restricted.

In the address above mentioned Sir Joseph advocated the operation "in all cases where the surgeon can feel himself morally certain that he can secure asepsis." I do not regard the unsuccessful termination of this case to any failure in the asepsis. The suppuration did not occur until some time after the operation, as such, had failed; it never was sufficient to cause any anxiety; neither was the joint ever involved in the suppuration; although freely opened at the operation it still has motion and presumably articular surfaces. The hindrances to success were confined to the patella, the tendon within which it lies, and the surrounding fibrous structures, and show in contradiction to Mr. Lister's statement that there are cases in which the operation should not be performed. The statement is very broad; it includes all cases of both recent and old ununited fractures, though he prefers those that are recent as presenting fewer obstacles to success! Very true! So would any surgeon prefer to treat a recent rather than an old fracture of any bone. The cases are not parallel; a comparison cannot be made with justice, they must be considered separately.

I do not care at present to say much about the recent class. But it is well to bear in mind that even here there have been death (Bull), amputation of the thigh (Wyeth) and several instances of ankylosis of the joint, (Bell, Bloxam, Schede (2), Koenig, Smith, and others), all resulting directly from the operative interference; a statement which cannot be justly charged to any other *method of treatment*. The nearest approach to this has been a few cases of erysipelas, and of suppuration following the use of Malgaigne's hooks, but running through the many years since their invention, and this it must be remembered, antedates for almost a century, the methods of antiseptic surgery. Practiced with the advantages offered by these methods, the risks from Malgaigne's hooks become nugatory, and should render the operation of opening the joint for the purpose of wiring the *recently* broken fragments together with its practically inevitable attendant dangers, a matter of very serious consideration in every case. It is certainly not to be universally accepted, as we are led to believe from the statements of its advocates, that *the surgeon can make it an operation of no danger*. How far Von der Meulen's method* of leaving intact the membrane posterior to (or underneath) the broken bone, thus avoiding opening into the joint, is to be found possible, remains for the present a subject for justifiable experimentation in selected cases.

It is to the treatment of old fractures, the fragments of which are joined with but an unreliable or quite useless ligamentous band, that I regard this operation favorably, as offering a chance for restoring to usefulness a limb which is little more than a burden.

I have been able to get more or less full accounts of thirty-five cases of old ununited fractures of the patella, with very unsatisfactory use of the limb, or of recent *refractures* which have been treated by cutting down upon the bone, freshening the surfaces, and wiring the fragments together under antiseptic precautions. Most of these are taken from Mr. Turner's table† read at the meeting of the Medical Society of London, when Mr. Lister's address was discussed, others are referred to by Dr. Wyeth; in reporting his case necessitating amputation after wiring a recent fracture; others are individual reports as follows, viz.:

* *Lancet*, January, 1884.

† *Lancet*, Nov. 17, 1883.


‡ *Med. Record*, N. Y., June 2, 1882.

CASES OF UNUNITED FRACTURES OF PATELA TREATED BY WIRING ANTISEPTICALLY.

OPERATOR.	Reference.	No. of Cases.	Result.	Remarks.
Lister,	<i>Lancet</i> , Nov. 3, 1883, ...	2	Cured,	1 could not kneel.
Bell,	Turner, <i>Lancet</i> , Nov. 17, 1883,	4	{ 1 ankylosis, ... { 3 cured,	1 supuration due to bleeding into joint after division of quadriceps tendon.
Howse,	Turner, l. c.,	4	{ 1 ankylosis, ... { 2 cured,	Subject syphilitic; no supuration.
Johnson Smith, ...	Turner, l. c.,	2	1 ankylosis,	Suppuration of joint.
Wood,	Turner, l. c., also p. 856,	3	{ 1 died, ... { 1 slight motion, ... { 1 cured,	Could not bring fragments together; quadriceps and aponeurosis divided; death from septicæmia in two weeks.
Cameron,	Turner, l. c.,	1	Cured,	Union ligamentous.
Bryant,	Turner, l. c.,	1	Imperfect,	Joint stiff.
Holderness,	Turner, l. c.,	1	Cured.	
Holmes,	Turner, l. c., also St. Geo. Hosp., Rep. X, 496,	1	Ankylosis,	Suppuration in joint.
Sidney Jones,	Turner, l. c., also <i>Lancet</i> , Aug. 11, 1883,	1	Ankylosis,	Quadriceps tendon and rectus muscle both divided; latter 3 inches above patella.

Lloyd,	Turner, l. c.,	1	Slight motion; 1 inch separation,	Quadriceps tendon and ligamentum patella both divided and lateral incisions in aponeurosis of vasti.
MacCormac,	Turner, l. c.,	1	Died,	Quadriceps divided, thigh amputated, and death from pyæmia.
Moulin,	Turner, l. c.,	1	Abandoned, condition same as before operation.	Could not bring fragments together, quadriceps <i>not</i> divided.
Parker,	Turner, l. c.,	1	Cured.	
Pemberton,	Turner, l. c.,	1	Slight motion,	Fibrous union at three months, patient wore leg in case.
Pye,	Turner, l. c.,	1	Ankylosis,	Suppuration in joint.
Henry Smith,	Turner, l. c.,	1	Cured.	Quadriceps tendon divided.
Turner,	l. c.,	1	Ankylosis,	Suppuration in joint.
Walsh,	<i>Lancet</i> , Dec. 22, 1883, ...	1	Slight motion,	Adhesions about joint.
Trendelenberg, ...	Wyeth, <i>Med. Rec.</i> , June 2, 1882, ...	1	Cured,	Full report in <i>Verhand. der Gesellschaft d. Chirurgie</i> Vol. VII, p. 1-89.
Uhde,	Wyeth, l. c., also <i>Dtsch. Med. Wochens.</i> April 17, 1878,	1	Cured.	
Bull,	Wyeth, l. c., ...	1	Died,	Exhaustion from suppuration of joint, etc.

CASES OF UNUNITED FRACTURES OF PATELLA TREATED BY WIRING ANTISEPTICALLY.—CONCLUDED.

OPERATOR.	Reference.	No. of Cases.	Result.	Remarks.
Wheelhouse,	<i>Lancet</i> , Dec. 15, 1883,...	1	Cured,	Quadriceps tendon divided, wires pulled through bone twice, removed and Malgaigne's hooks substituted (should it be included?).
Macewen,	<i>Lancet</i> , Nov. 17, 1883,...	1	Cured,	Quadriceps tendon divided, but fragments could not be brought together until a series of deep oblique incisions in the muscle were made as follows: these closed when the patella was drawn upon. 
Carmalt,	1	Imperfect movement,...	Wires pulled through bone, division of quadriceps tendon subcutaneously; superficial suppuration.

Of these 35 cases, 3 (8%) died, 7 (20%) had suppuration of the joint and subsequent ankylosis; in 9 (26%) there was no improvement from the operative interference, and 16 (46%) were cured. This certainly does not confirm Lister's view of the safety of the operation, and in the 54% of failures (for in an operation undertaken to improve the usefulness of a part, "no improvement," is failure) there were several where a septic condition of the wound or joint could not be claimed to be the reason of this result.

Some of them were unquestionably due to conditions intrinsic to the injury, or to its after treatment preceding the operation, such as adhesions of the quadriceps tendon and aponeurosis to the underlying and adjacent parts (Henry Smith, Sidney Jones, Wood, Bell, Carmalt). Shortening of the quadriceps (or rectus) muscle with more or less atrophy, (Macewen, Moulin, Lloyd) atrophy of the fragments and consecutive softening of the osseous tissue (Wheelhouse, Carmalt).

That the division of the quadriceps tendon is not unattended with, danger is shown in the table, where of ten cases of division of this tendon, two died of pyæmia, in two there was suppuration of the joint followed by ankylosis, in three more the result was unsatisfactory, *i. e.*, 20% of deaths and 70% of failures; while in the remaining 25 cases, in which from the absence of a statement as to a division of this tendon, it may be presumed that it was not done, one died from exhaustion from suppuration of the joint, five had ankylosis following suppuration, in six the operation was not followed by improvement, or 4% of deaths and 48% of failures.

It appears to me from the consideration of this number of cases representing quite a diversity of conditions at the time of operating, that although the operation itself under strict antiseptic precautions, offers us undoubtedly a valuable contribution to operative surgery, it is not to be accepted as universally applicable to all cases of even ununited fractures alone; that there are cases in which it is hopeless for us to undertake it, and we are not justified in subjecting the patient to its risks; that amputation and an artificial limb, or some mechanical appliance should be recommended instead. I am inclined to think from the experience the profession has so far gained, that we must restrict this operation to cases which permit considerable mobility of the upper fragment, and allow it to be approximated to the lower one, but in which after waiting a reasonable time, osseous or firm union does not take place. In these cases it may be fairly assumed, that adhesions to the parts beneath do not exist, or may be readily broken without extensive divisions of the tendon, and the operation may be performed with a reasonable prospect of success without unduly risking the patient's life.

It is more than probable, in my mind, that in many instances, in the attempts to bring the fragments together by apparatus and appliances,

which exert a good deal of pressure upon the upper fragment, inflammations with consequent adhesion to the parts beneath is excited. It becomes, therefore, a question with regard to our early treatment of these cases, how far and how long we are justified in carrying out attempts to bring the fragments together, in view of the fact that we may thereby be depriving ourselves of a more certain method of cure afterwards in the operation under discussion.

A CASE OF LITHOLAPAXY.

George H., aged 42 (looks 65), a hostler, was admitted to the hospital on April 16, 1883, with the statement that three months previously, after having suffered for two or three years with symptoms of vesical irritation and occasional retention of urine, that Dr. L. M. Gilbert of this city had removed from the anterior portion of the urethra, directly at the navicular fossa, an irregularly almond-shaped calculus, with very considerable relief to his suffering. This did not, however, continue, and he applied to the hospital for treatment. A foreign body, presumably a stone, was readily detected, and on the 19th he was put under ether and, after crushing with a Bigelow's Lithotrite, the fragments were removed through the straight evacuating catheter, using Bigelow's second form of evacuator. The crushing was done twice, and, after the second evacuation, no fragments could be detected by the sound. The operation lasted 55 minutes. After filtering and drying, the fragments weighed 97 grains.

The patient had no untoward symptoms afterwards; indeed it was with difficulty that he was persuaded to stay in bed the next day, insisting that he was quite well. No fragments were passed, nor did he have any irritation at the neck of the bladder, as I expected, for I experienced an embarrassment in the manipulation of the evacuating catheter that is not mentioned by the author of the operation, nor do I remember to have seen alluded to by its critics. I found, in removing the catheter after the first crushing, when it became evident that there were one or more fragments too large to pass through it, that one of them became impacted in the eye of the catheter by the suction of the evacuating bag, and that there was great danger that the neck of the bladder might be lacerated in attempts at withdrawal. This laceration can readily happen, as from the necessarily large size of the catheter the canal hugs it tightly, and one cannot, without considerable experience (and practice on the cadaver by no means gives the same feeling of resistance that the actual operation affords), feel sure that the eye is free, and when the mucous membrane is thus on the stretch, a slight nick from a sharp angle of a fragment of stone may make a considerable laceration. If once incautiously or ignorantly drawn into the canal, the urethra may be torn its whole length. I would therefore suggest that

the novitiate (at least) should, in order to escape this accident, first reverse the position of the eye of the catheter in the bladder, directing it downwards, and then make a slight and somewhat sudden pressure upon the evacuating bag, thus freeing the eye from whatever may be caught there, and allowing the fragment to fall into the lowest part of the bladder away from the orifice. The tube may then be withdrawn, either thus reversed or in the usual position, the lithotrite again introduced, and the crushing repeated.

SUB-TROCHANTERIC OSTEOTOMY FOR VICIOUS ANKYLOSIS OF HIP JOINT.

CURE. PATIENT PRESENTED TO SOCIETY.

R. S., 7 years of age, was admitted a second time to the hospital, on Aug. 29, 1883. She had been a patient during the previous summer, admitted on May 3d, 1883, for the same deformity, and I had then attempted to overcome it by Adams' operation of dividing the neck of the femur, using however, a Macewen's chisel. Although I think I divided the neck, and at the operation obtained a considerable correction of the deformity, owing to the very considerable deposition of osseous and fibrous material about the acetabulum and head of the femur, and the great mobility of the spinal column, I was unsuccessful in preserving the extension necessary for the permanent correction of the deformity; the limb returned to its former position, and the joint became as fixed as before the operation. I therefore determined to make the division below the trochanters, but sent the patient home to recuperate from the effect of the confinement before operating again. On readmission, the right thigh was immovably fixed at a right angle to the axis of the vertebral column; the distance from the heel to the floor when the latter was erect, and the patient stood upon the left leg, was 10 inches, being just the length of the femur from the apex of the trochanter major to the extreme end of the external condyle (see fig. 1), while at the greatest extension the child could give by curving the spinal column, the toes of the right foot rested upon the left instep (see fig. 2).

On Sept. 29th, the femur was divided by a simple incision just below the trochanters, the line of incision being nearly transverse to its axis. I used a Macewen's osteotomy chisel, and supported the leg during the operation upon sand bags. Strict Listerism was observed throughout the operation, and in the bandage afterwards applied. The tendon of the gracilis muscle, and some fibrous contractions of the fascia lata near the anterior superior spinous process of the ilium, were divided. The leg and vertebral column were then brought into a nearly straight line, and a plaster of Paris bandage, extending from just below the axillae, down and around each leg to the ankles; the right leg was slightly abducted and everted. The plaster bandage was reinforced by an iron bar, bent into a shape to conform to the normal curvatures of the back

and the abducted position of the leg, extending from between the shoulders to the popliteal space. This was shaped previously and used to secure greater accuracy during the application of and setting of the plaster bandage than would be otherwise practicable.

After recovery from the ether the patient was comfortable, and the temperature never reached 100° F., running very nearly a normal course. The only uncomfortable conditions were those incident to the confined position in which she was kept. She was quite unable to make water, necessitating passing the catheter, and the bowels were very torpid.

In about three weeks the plaster was cut away from the left leg and more movement in bed allowed. On Nov. 22d all bandages were removed and the child allowed to go about on crutches, which she did readily. In the course of a couple of weeks more she was given a shoe with a cork sole 1 inch high, with which she walks with a scarce perceptible limp. The exact amount of shortening being $1\frac{1}{4}$ inches (see fig. 3.)

The patient was shown at the meeting of the State Society, having walked up two long flights of stairs without taking hold of anything with her hands, putting her feet alternately on each succeeding step, as one ordinarily does. In sitting down she is obliged to sit on an edge of the seat, either the front or the right side. She can stoop to touch the ground, but cannot button her shoe of that foot. I think the position a little too straight for the most usefulness, it would be better if it were at an angle of about 35° from a vertical with the spine.

I prefer this, Gant's, operation to Adams', as the incisions require much less laceration of surrounding parts, and where there has been much inflammation with absorption of the head and neck of the femur, and, perhaps, dislocation upon the dorsum of the ilium, the relations of parts are disturbed, the leg is then shorter anyhow, and nothing is gained by the more tedious operation. The division of the shaft as practised offered no serious difficulty.

FIG. 1.

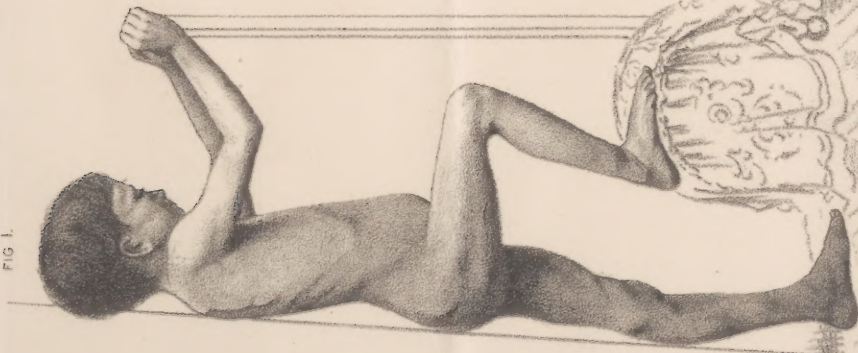


FIG. 2.

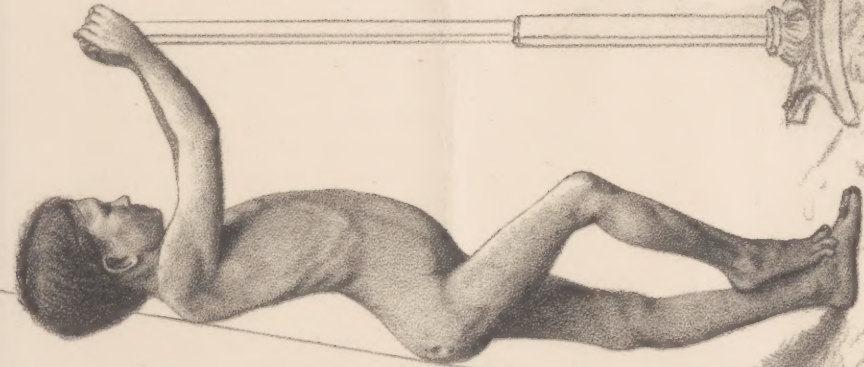


FIG. 3.

